Amber wine treatment – fermented on skins, shown at the start (left) and end of fermentation (right)

Amber wine

Since 2016, the AWRI has made a series of wines from single batches of grapes, changing one variable in each fermentation, with the resulting wines being presented to winemakers in workshops around Australia. In this column, Geoff Cowey explores key questions from winemakers on full skin contact in white winemaking – that is, the production of amber wines – one of the treatments included in the 2019 Chardonnay trial.

What is amber wine?

Amber or 'orange' wines are wines made from white grapes using techniques traditionally used for red winemaking. This involves fermentation on skins, seeds and sometimes stems and can include extended skin contact post-fermentation. Amber wine can appear orange in colour, but also white, yellow, brown or pink, dependent on the variety, process undertaken and whether oxidative or reductive handling is employed. Rather than fresh aromatic or varietal flavours, amber wines tend to appear more complex and savoury. They are typically dry, medium or full bodied, have noticeable tannin astringency and wine texture and can be lower in alcohol than other white wine styles. Grape phenolic under-ripeness and high acidity can add perceived bitterness and enhance astringency. Overripe fruit and higher pH can make amber wines less astringent but more broad and 'blousy'. Amber wines are intended to be drunk at room temperature and are often considered 'food wines'. Some producers use the technique on a portion of fruit and then include it in a blend to add complexity or texture.

What varieties are used?

Amber winemaking is considered a regional specialty in places such as Friuli and Sicily in Italy and parts of Spain, Slovenia, Georgia and Switzerland, using low aromatic varieties that benefit from additional flavours gained through this technique. The technique is also used with other varieties that contain high amounts of flavonol glycosides locked away in their skins, with the aim of releasing these flavour precursors to contribute additional wine flavour. In Australia, varieties used for amber wine include Chardonnay, Pinot Gris and Semillon but also aromatic varieties such as Riesling, Gewürztraminer, Sauvignon Blanc, Muscat and Viognier.

Is there a standard winemaking practice for amber wine?

Other than fermentation being performed on skins, not really! Varieties high in phenolics and high in acid can appear harsh and bitter when made in amber style, with some winemakers choosing to hyperoxidise the must to decrease phenolic content. Fermentation can be conducted in amphorae or in different types of tanks. Fermentation is generally performed warm and not temperature controlled. Some winemakers may use natural yeasts, others allow film-forming yeast to grow on the wine surface after fermentation, and some allow post fermentation skin-contact. Amber wines can be made both with and without addition of sulfur dioxide to must and to the finished wine. Maturation in oak is common to allow phenolics to soften and integrate with oak compounds. In the amber treatment in the 2019 Chardonnay trial, fruit was hand-harvested and no sulfur dioxide

was added. The fruit was crushed, destemmed, inoculated (using CY3079) and fermented on skins and seeds in an open-top stainless-steel fermenter. The cap was plunged twice daily then pressed. A sulfur dioxide regime typical for standard white winemaking was then implemented during wine storage in stainless steel and the wine was bottled within six months.

What are the effects on wine chemistry?

Fermentation on skins results in increased extraction of varietal grape flavours, occurring mostly in the first third of fermentation, but conversely reduces the amount of fermentation-derived esters, because of inhibitors, adsorption of precursors onto grape skins, increased uptake and interaction of flavours with oxygen or loss via evaporation during cap management (Lukic 2017). Additional microbial diversity would also be expected to effect fermentation dynamics and flavours.

Tannin extraction increases steadily throughout fermentation, enhanced with the increasing ethanol formation, to levels much greater than achieved through pre-fermentation skin contact techniques, increasing the body, mouth-feel and texture. Oxygen exposure at the start of fermentation, before fermentative carbon dioxide accumulates, can result in the 'browning/amber' colouration from oxidation of extracted phenolics. This can be minimised by adding sulfur dioxide to must but this can also limit later tannin development. As white grapes contain lower concentrations of anthocyanins than red grapes, tannins are less likely to be polymerised and retained in the final wine and thus amber wines can be more bitter and have some astringency but are generally less astringent than red wines.

A decrease in acidity (or an increase in pH up to 0.2 pH units) occurs due to greater potassium extraction from grape skins followed by subsequent potassium bitartrate precipitation in the wine due to its lower solubility in ethanol. Lower alcohol levels are typically due either to absorption by stems or greater ethanol evaporation due to warmer fermentation temperature and use of open-top fermenters.

Can you use the term 'orange wine'?

To consumers, a wine labelled 'orange wine' could be interpreted as a wine of orange colour, but also could be misconstrued as a wine made in the GI region of Orange or even a fruit wine fermented from oranges (Guy 2014). Some producers have thus begun using 'amber wine' as an alternative description for the winemaking technique. For assistance with legal requirements regarding labelling these wine styles in Australia, contact the compliance team at Wine Australia on labels@wineaustralia.com.

For further information about amber winemaking or other technical winemaking or viticulture questions, contact the AWRI helpdesk on (08) 8313 6600 or helpdesk@awri.com.au

References

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